



GEORGIA WAREHOUSE
3939 Royal Drive, Suite 139,
Kennesaw, GA, 30144

MICHIGAN WAREHOUSE
25991 Northline Commerce Dr.
Unit 504 Taylor, MI 48180

UTAH WAREHOUSE
647 West Billinis Road, Unit 1
Salt Lake City, Utah 84119

Re: Certificate of Analysis
Glycerin 99.7% USP K
Natural Kosher
Excipient Use Only
Lot No.: 17-324-02
Po.No.: 11644
Date of Mfr:11/20/2017

Attn: Quality Control Manager

<u>TEST, (METHOD)</u>	<u>SPECIFICATION</u>	<u>RESULT</u>
Specific Gravity @ 25°C, (<841>)	1.249 minimum	1.2617
Assay, % Glycerol	Not less than 99.7%	99.9
Assay, Dry Basis (USP)	99.0 – 101.0%	100.0
Water, (Method I <921)	0 - 5.0%	0.07
Fatty Acids & Esters, (USP)	0 - 1 ml 0.5N NaOH max.	0.1
Residue on Ignition, (<281>)	100 ppm maximum (0.01%)	<0.01
Chloride, (<221>)	10 ppm maximum (0.001%)	< 10 ppm
Sulfate, (<221>)	20 ppm maximum (0.002%)	< 20 ppm
Heavy Metals, (<231>)	5 ppm maximum (0.0005%)	< 5 ppm
Chlorinated Compounds, (USP)	30 ppm maximum (0.003%)	< 30 ppm
Appearance & Odor (Organoleptic)	Reference Standard	PASS
Residual Solvents, (Method IV <467>)	Meets requirements	PASS
Identification A, IR Scan(USP)	Meets requirements	PASS
Identification B, GC (USP) (Diethylene Glycol and Ethylene Glycol Impurities)	< 0.1% of each	PASS
Identification C, GC (USP)	Meets requirements	PASS
Related compounds, (USP)	All individual impurities <0.1% Total impurities < 1.0%	<0.1 <1.0
Color, USP	Passes Test	PASS
Odor, (Organoleptic)	Odorless	Odorless
Physical form	Clear liquid	Clear liquid

*When stored in its original, unopened container at 35 - 95°F, this product has a minimum shelf-life of 2 years. Avoid exposure to extremely high or low temperatures.

This product is excipient grade and not intended to be used as an active pharmaceutical ingredient or for specialist applications, such as parenteral, ocular, inhalation, open wound use, or applications that require sterile and/or pyrogen-free excipients. Glycerin products sold by Chemworld.com are not for use in any application intended to produce vapor, fog, mist, smoke or aerosol, wherein there is a possibility of inhalation. Chemworld.com expressly disclaims any and all liabilities related to the use of Glycerin in such applications. Refer to the MSDS materials provided with your product's shipment for additional information about proper use and potential hazards of these products.